SAGAR

COMISION NACIONAL DE SANIDAD AGROPECUARIA
DIRECCION GENERAL DE SALUD ANIMAL

Comisión Nacional de Sanidad Agropecuaria

# INFORMATION ON CAMPECHE STATE AS FREE OF VELOGENIC NEWCASTLE DISEASE AND AVIAN SALMONELLOSIS

Mexico/August, 1998

# INFORMATION ON THE STATE OF CAMPECHE AS FREE OF VELOGENIC NEWCASTLE DISEASE AND AVIAN SALMONELLOSIS

## I. AUTHORITY, ORGANIZATION AND INFRASTRUCTURE OF VETERINARY SERVICES

Federal and state animal health authorities are governed by the following laws and official Mexican standards for poultry diseases:

### Federal Authorities

Federal Law on Metrology and Standardization, Chapter III, Articles 52 to 57 (June 30, 1992), and the decree amending, adding and deleting various provisions of the Federal Law on Metrology and Standardization (Federal Official Gazette, May 20, 1997).

Federal Animal Health Law, Chapter III, Article 4 (June 18, 1993).

Official Mexican Standard NOM-013-Z00-1994, National Velogenic Newcastle Disease Campaign.

Official Mexican Standard NOM-005-ZOO-1993, National Avian Salmonellosis Campaign.

Official Mexican Standard NOM-044-ZOO-1993, National Avian Influenza Campaign.

Official Mexican Standard NOM-046-ZOO-1996, National Epidemiological Surveillance System.

Official Mexican Standard NOM-012-ZOO-1995, Specifications for regulation of chemical, pharmaceutical, biologic and food products for use in animals or to be consumed by them.

Official Mexican Standard NOM-018-ZOO-1995, Veterinarians accredited as verification units authorized to provide official services in the field of animal health.

Official Mexican Standard NOM-022-ZOO-1995, Animal health characteristics and specifications for facilities, equipment and the operation of establishments that market chemical, pharmaceutical, biological and food products for use in animals or to be consumed by them.

Official Mexican Standard NOM-047-ZOO-1995, Minimum requirements for vaccines, bacterins and antigens used in the prevention and control of avian salmonellosis.

Official Mexican Standard NOM-052-ZOO-1995, Minimum requirements for vaccines used in the prevention and control of Newcastle disease.

Official Mexican Standard NOM-055-Z00-1995, Minimum requirements for production of vaccines used in avian influenza prevention, control and eradication.

Official Mexican Standard NOM-003-ZOO-1994, Operational criterions for approved laboratories in tests in the zoosanitary field.

Decree activating the National Animal Health Emergency Mechanism, under the terms of Article 35 of the Federal Animal Health Law, published in the Federal Official Gazette on January 23, 1995.

**State Authority**

Federal Law on Metrology and Standardization, Chapter III, Articles 52 to 57 (June 30, 1992), and the Decree amending, adding and deleting various provisions of the Federal Law on Metrology and Standardization (Federal Official Gazette, May 20, 1997).

Federal Animal Health Act, Chapter III, Article 4 (June 18, 1993).

Campeche State Law on Livestock, Chapter II, Article 7 (September 12, 1997).

**Animal Health Infrastructure**

**a) Federal Structure**

There is a state Delegate of the Agriculture and Rural Development Secretariat (SAGAR) in Campeche and a Sub-delegation for the livestock sector. The organization chart of this structure is shown in Annex 1.

**Veterinarian Personnel**

**Official Veterinarians.-** The 4 Rural Development Districts (DDR) in the state of Campeche are manned by the following official veterinarians and animal husbandry technicians on the SAGAR staff:

| Rural Development District | Veterinarians |
|---|---|
| 001.- Hecelchakan | 2 |
| 002.- Campeche | 9 |
| 003.- Champotón | 1 |
| 004.- Escárcega | 6 |
| **Total** | **18** |

There are also 4 veterinarians in the Livestock Assistant Delegate's Office who assist in avian campaigns that are carried out in the state.

**Approved Veterinarians.-** There are 3 veterinarians in Campeche approved for these avian diseases.

There are 2 phytozoosanitary inspection offices in the state for international control of movements of animals and animal products and byproducts, supervised by official inspectors and veterinarians. There are also 10 inspection posts staffed by qualified SAGAR personnel.

There are 9 municipal slaughter plants in Campeche and one private plant, which are supervised by the veterinarians who work in those plants.

**b) State Structure**

The Agriculture and Forestry Office is a part of the Rural Development Secretariat, a Campeche state government agency. In coordination with the Federal Government, and acting through the SAGAR Agricultural Sub-delegation and the Campeche State Livestock Protection and Promotion this office takes actions for the prevention, control and eradication of diseases subject to zoosanitary campaigns of regional interest. This structure is shown in Annex 2.

**c) Technical and Professional Schools**

There is one School of Higher Agricultural Education in the state, and 14 Agricultural Technical Studies Centers.

## II.- TYPE AND EXTENT OF SURVEILLANCE IN THE REGION

**Active Surveillance**

During the eradication phase and in order to declare the region free of the two diseases, 100% of the commercial farms were checked, according to the pattern set forth in Item 9 of Official Mexican Standard NOM-005-ZOO-1993, National Avian Salmonellosis Campaign, and Item 8, NOM—013-Z00-1994, National Velogenic Newcastle Disease Campaign.

When the state entered the disease-free stage in March 1996, an epidemiological survey of back yard flocks was conducted to check for these avian diseases. The sample size used, the geographical distribution and the number of samples per flock was determined by the General Animal Health Directorate. This survey was carried out with the participation of the SAGAR State Delegation personnel and that of the Mexico-United States Commission for Prevention of Foot and Mouth Disease and other Exotic Animal Diseases (CPA).

As 100% of the poultry farms and flocks were certified as free of these diseases, a statistical sample size was not determined for technified poultry farms.

In 1996, 1029 samples of back yard birds were collected for the **VND** study. The distribution of these samples by municipality is shown below:

| Municipality | Number of Samples |
|---|---|
| Calkini | 141 |
| Hecelchakan | 84 |
| Tenabo | 42 |
| Campeche | 72 |
| Hopelchen | 105 |
| Champotón | 159 |
| Escárcega | 147 |
| Carmen | 225 |
| Palizada | 54 |
| **Total** | **1,029** |

A total of 1,715 samples were collected for **AS** diagnosis, broken down as follows:

| Municipality | Number of samples |
|---|---|
| Calkini | 235 |
| Hecelchakan | 140 |
| Tenabo | 70 |
| Campeche | 120 |
| Hopelchen | 175 |
| Champotón | 265 |
| Escárcega | 245 |
| Carmen | 375 |
| Palizada | 90 |
| **Total** | **1,715** |

The samples were processed by CENASA, and they were all negative for both diseases. The difference between the total number of samples for VND and AS is because, in the case of AS several organs capable of lodging *Salmonella sp.* were also collected and tested.

In 1997, even though 100% of the technified poultry farms had disease-free farm and flock certificates, they were included in the state survey, determined by the General Animal Health Directorate (DGSA), through the National Epidemiological Surveillance System (SIVE), in order to achieve recognition for the state as free of these diseases. For this reason, 100% of the technified poultry farms were surveyed and a statistically representative sample of back yard flocks was used for the survey, according to the following scheme:

## Statistical Sample Size for Technified Poultry Farms in the State of Campeche, 1997
## Velogenic Newcastle Disease and Avian Salmonellosis

| COMPANY NAME | NAME OF FARM | LOCATION | PRODUCTION TYPE | BIRD POPULATION | No. OF INSPECTION POSTS | No.OF POSTS SAMPLED | No. OF SAMPLES PER POST | TOTAL NO. OF SAMPLES |
|---|---|---|---|---|---|---|---|---|
| Emporio | San Diego | Km. 90,. Mérida-Camp Calkini Rd. | Broilers | 100,000 | 20 | 20 | 3 | 59 |
| Campi | San Epitanio | Km. 90, Camp-Mérida, Hkan Rd. | Broilers | 44,000 | 6 | 6 | 10 | 59 |
| Campi | San Esteban | Km. 90, Camp-Mérida, Hkan Rd. | Broilers | 42,000 | 6 | 6 | 10 | 59 |
| Campi | San Valentín | Km. 90, Camp-Mérida, Hkan Rd. | Broilers | 42,000 | 6 | 6 | 10 | 59 |
| Campi | San José | Known Address, Campeche | Broilers | 36,500 | 4 | 4 | 15 | 59 |
| Campi | San Antonio | Known Address, Campeche | Broilers | 30,000 | 4 | 4 | 15 | 59 |
| Campi | Santa Ana | Known Address, Campeche | Broilers | 30,000 | 9 | 9 | 7 | 59 |
| Campi | Santa María | Known Address, Campeche | Broilers | 60,000 | 4 | 4 | 15 | 59 |
| Campi | Santa Cecilia | Known Addess, Campeche | Broilers | 22,000 | 5 | 5 | 12 | 59 |
| Campi | Xtun | Km. 28, Antigua Camp-Mérida Rd. | Broilers | 170,000 | 2 | 2 | 30 | 59 |
| Sanjor | Ivette | Km. 30, Antigua Camp-Mérida Rd. | Broilers | 45,000 | 4 | 4 | 15 | 59 |
| Campi | Crucero | Km. 30, Antigua Camp-Mérida Rd. | Broilers | 100,000 | 2 | 2 | 30 | 59 |
| Campi | Cayal | Km. 48, Camp-Mérida via Chenes Rd. | Broilers | 62,000 | 12 | 12 | 5 | 59 |
| Avic. Glez. | SPR Avic. Glez. | Known Address, Pucnachen, Calkini | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Dziltbalche | Known Address, Dzitbalche, Calkini | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Hkan | Known Address,, Hkan, Hecelchakan | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Tinum | Tinum, Tenabo | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Bolonchen | Known Address Bolonchen de Rejon | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Hopelchen 4 | Holpechén-Mérida Rd. | Commercial Layers | 28,000 | 4 | 4 | 15 | 59 |
| Avic. Glez. | SPR Avic. Hopelchen 1 | Known Address, Hopelchen, Holpechen | Commercial Layers | 77,100 | 4 | 4 | 15 | 59 |
| Avic. Glez. | SPR Avic. Hopelchen 2 | Known Address, Hopelchen, Holpechen | Commercial Layers | 93,600 | 4 | 4 | 15 | 59 |
| Avic. Glez. | SPR Avic. Hopelchen 3 | Known Address, Hopelchen, Holpechen | Commercial Layers | 101,000 | 4 | 4 | 15 | 59 |
| Avic. Glez. | SPR Avic. Samula | Known Address, Samula, Campeche | Commercial Layers | 10,000 | 2 | 2 | 30 | 59 |
| Avic. Glez. | SPR Avic. Hool | Known Address, Hool, Champotón | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Ruiz Cort. | Known Address, Ruiz Cortinez, Camp. | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Hobomo | Known Address, Hobomo, Campeche | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Pixoyal | Known Address, Pixoyal, Champotón | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Avic. Glez. | SPR Avic. Ref. Agraria | Known Address, Ref. Agraraia, Champ. | Commercial Layers | 10,000 | 1 | 1 | 59 | 59 |
| Sanjor | Progenitoras de Camp. | Km. 72, Hopelchen-Mérida Rd. | Broiler Breeders | 10,000 | 5 | 5 | 12 | 59 |
| **TOTAL** | | | | **1,203,200** | **117** | **117** | | **1,711** |

a) The Cannon and Roe statistical formula (1982) was used to estimate the statistical sample size for ejidos, with a 95% confidence level and a 5% expected prevalence, with 59 samples per farm
b) Samples for both diseases may be cloacal swabs.
c) Tracheal swabs are suggested for Newcastle disease.
d) Samples should be taken at random, preferably of the daily deaths, and sick or healthy birds

## Statistical Sample Size for Back Yard Flocks in the State of Campeche
## 1997
## Newcastle Disease and Avian Salmonellosis

| DDR | MUNICIPALITY | NUMBER OF COMMUNITIES | No. OF PREMISES | No. OF BACK YARD BIRDS | SAMPLE SIZE | | |
|---|---|---|---|---|---|---|---|
| | | | | | No. OF PROPERTIES TO BE SAMPLED | No. OF SAMPLES PER PROPERTY | SAMPLES PER MUNICIPALITY |
| Hecelchacán | Calkini | 19 | 1,751 | 18,798 | 31 | 5 | 156 |
| | Hecelchakán | 17 | 3,882 | 37,542 | 62 | 5 | 311 |
| | Tenabo | 9 | 346 | 3,804 | 6 | 5 | 32 |
| Campeche | Campeche | 56 | 962 | 10,158 | 17 | 5 | 84 |
| | Hopelchen | 118 | 1,025 | 13,500 | 22 | 5 | 112 |
| Champotón | Champotón | 138 | 3,766 | 47,500 | 79 | 5 | 394 |
| Escárcega | Carmen | 211 | 2,000 | 23,940 | 40 | 5 | 199 |
| | Escárcega | 115 | 1,672 | 16,240 | 27 | 5 | 135 |
| | Palizada | 42 | 897 | 8,820 | 15 | 5 | 73 |
| **TOTAL** | | **725** | **16,301** | **180,302** | **299** | | **1,495** |

a) An average of eleven birds per back yard flock was used in the state of Campeche, with at least five samples from each property, or 100% if there were fewer than five.
b) The Cannon and Roe (1982) statistical formula was used to estimate the sample size for back yard flocks, with a 95% confidence level and a 1% expected prevalence.
c) The samples for both diseases may be cloacal swabs.
d) Samples should be collected at random for both confined or free birds.
e) Samples should be sent to a laboratory designated by the General Animal Health Directorate and according to the sample collecting and shipping protocol of the assigned laboratory.

The table below shows epidemiological surveillance actions during **1997** for **VND** and **AS**:

| **Municipality** | **Number of VND samples** | | **Number of AS Samples** | |
|---|---|---|---|---|
| | **Tech. Farms** | **Back Yards** | **Tech. Farms** | **Back Yards** |
| Calkini | 180 | 179 | 180 | 179 |
| Hecelchakan | 240 | 331 | 240 | 331 |
| Tenabo | 60 | 40 | 60 | 40 |
| Campeche | 600 | 105 | 600 | 105 |
| Hopelchen | 300 | 180 | 300 | 180 |
| Champotón | 180 | 400 | 180 | 400 |
| Escárcega | * | 160 | * | 160 |
| Carmen | 60 | 200 | 60 | 200 |
| Palizada | * | 80 | * | 80 |
| **Total** | **1,620** | **1,675** | **1,620** | **1,675** |

*There are no technified poultry farms in these municipalities

Two of the technified farms in the state were not active during that year, and for that reason 1,620 samples were collected instead of the 1,711 that had been originally programmed.

The samples collected for this survey were sent to the Merida Regional Central Laboratory, and tested negative.

The state of Campeche began the 1998 epidemiological survey based on the assigned sample size. The statistical design and stratification is shown in the next tables:

## Statistical Sample Size of Technified Poultry Farms in the State of Campeche
## 1998
## Newcastle Disease and Avian Salmonellosis

| | COMPANY | FARM NAME | CURRENT POPULATION | % | SAMPLES PER FARM |
|---|---|---|---|---|---|
| 1 | EMPORIO | SAN DIEGO X'MAK | 100,000 | 8.44 | 59 |
| 2 | CAMPI | SAN EPIFANIO | 44,000 | 3.71 | 59 |
| 3 | CAMPI | SAN ESTEBAN | 42,000 | 3.54 | 59 |
| 4 | CAMPI | SAN VALENTIN | 42,000 | 3.54 | 59 |
| 5 | CAMPI | SAN JOSE | 36,500 | 3.08 | 59 |
| 6 | CAMPI | SAN ANTONIO | 30,000 | 2.53 | 59 |
| 7 | CAMPI | SANTA ANA | 30,000 | 2.53 | 59 |
| 8 | CAMPI | SANTA MARIA | 60,000 | 5.06 | 59 |
| 9 | CAMPI | SANTA CECILIA | 22,000 | 1.86 | 59 |
| 10 | CAMPI | XTUN | 170,000 | 14.34 | 59 |
| 11 | CAMPI | IVETTE | 45,000 | 3.80 | 59 |
| 12 | CAMPI | CRUCERO | 100,000 | 8.44 | 59 |
| 13 | CAMPI | CAYAL | 62,000 | 5.23 | 59 |
| 14 | AVIC. GONZALEZ | SPR AV. PUCNACHEN | 10,000 | 0.84 | 59 |
| 15 | AVIC. GONZALEZ | SPR AV. OZITBALCHEPUCNACHEN | 10,000 | 0.84 | 59 |
| 16 | AVIC. GONZALEZ | SPR AV. HKAN | 10,000 | 0.84 | 59 |
| 17 | AVIC. GONZALEZ | SPR AV. TINUM | 10,000 | 0.84 | 59 |
| 18 | AVIC. GONZALEZ | SPR AV. BOLONCHEN | 10,000 | 0.84 | 59 |
| 19 | AVIC. GONZALEZ | SPR AV. HOPEL 1 | 77,123 | 6.51 | 59 |
| 20 | AVIC. GONZALEZ | SPR AV. HOPEL 2 | 93,570 | 7.89 | 59 |
| 21 | AVIC. GONZALEZ | SPR AV. HOPEL 3 | 100,988 | 8.52 | 59 |
| 22 | AVIC. GONZALEZ | SPR AV. HOPEL 4* | | | |
| 23 | AVIC. GONZALEZ | SPR AV. SAMULA | 10,000 | 0.84 | 59 |
| 24 | AVIC. GONZALEZ | SPR AV. HOOL | 10,000 | 0.84 | 59 |
| 25 | AVIC. GONZALEZ | SPR AV. R. CORTINEZ | 10,000 | 0.84 | 59 |
| 26 | AVIC. GONZALEZ | SPR AV. HOBOMO | 10,000 | 0.84 | 59 |
| 27 | AVIC. GONZALEZ | SPR AV. CHEKUBUL | 10,000 | 0.84 | 59 |
| 28 | AVIC. GONZALEZ | SPR AV. PIXOYAL | 10,000 | 0.84 | 59 |
| 29 | AVIC. GONZALEZ | SPR AV. REFORMA AGRARIA | 10,000 | 0.84 | 59 |
| 30 | SANJOR | PROGENITORAS DE CAMPECHE | 10,000 | 0.84 | 59 |
| | TOTAL | | 1,185,181 | 100 | 1,711 |

*If this farm is repopulated 59 birds will be sampled.

a) The Cannon and Roe statistical formula (1982) was used to estimate the statistical sample size for back yard flocks, with a 95% confidence level and a 5% expected prevalence.

b) 100% of all technified farms were sampled.

**Statistical Sample Size for Back Yard Flocks in the state of Campeche**
**1998**

**Newcastle Disease and Avian Salmonellosis**

| | NAME OF THE MUNICIPALITY | TOTAL NO. OF UNITS | % | BACKYARD BIRD POPULATION | % | UNITS TO BE SAMPLED | SAMPLES PER UNITS | SAMPLES PER MUNICIPALITY |
|---|---|---|---|---|---|---|---|---|
| 1 | CALKINI | 1,751 | 10.7 | 18,798 | 10.4 | 32 | 5 | **161** |
| 2 | HECELCHAKAN | 3,882 | 23.8 | 37,542 | 20.8 | 71 | 5 | **356** |
| 3 | TENABO | 346 | 2.1 | 3,804 | 2.1 | 6 | 5 | **32** |
| 4 | CAMPECHE | 962 | 5.9 | 10,158 | 5.6 | 18 | 5 | **88** |
| 5 | HOPELCHEN | 1,025 | 6.3 | 13,500 | 7.5 | 19 | 5 | **94** |
| 6 | CHAMPOTON | 3,766 | 23.1 | 47,500 | 26.4 | 69 | 5 | **345** |
| 7 | CARMEN | 2,000 | 12.3 | 23,840 | 13.2 | 37 | 5 | **183** |
| 8 | ESCARCEGA | 1,672 | 10.3 | 16,240 | 9.0 | 31 | 5 | **153** |
| 9 | PALIZADA | 897 | 5.5 | 8,820 | 4.9 | 16 | 5 | **82** |
| | **TOTAL** | **16,301** | **100** | **180,202** | **100** | **299** | | **1,495** |

a) The Cannon and Roe statistical formula (1982) was used to estimate the back yard flock statistical sample size, with a 95% confidence level and a 1% expected prevalence.
b) A five bird sample will be taken from each back yard flock, or 100% if there are fewer than five.
c) The sample is taken randomly regardless of whether the animals are confined or free roaming.

### Passive Surveillance

By law there are various diseases in Mexico subject to mandatory immediate reporting. Moreover, Official Mexican Standard NOM-046-ZOO-1996, National Epizootiological Surveillance System, defines the persons and agencies or organizations that should report animal diseases, as well as the reporting mechanisms and frequency to be used. In this way, passive surveillance is the same for all states.

## III.-DIAGNOSTIC LABORATORY CAPACITY

There are 6 animal health centers in the state of Campeche, and the main diagnostic procedures that they carry out are coproparasitology, hematology and serology (brucellosis) tests. These laboratories are listed below:

1.- Campeche Animal Health Center
2.- Champotón Animal Health Center
3.- Ciudad del Carmen Animal Health Center
4.- Escarcega Animal Health Center
5.- Palizada Animal Health Center
6.- Candelaria Animal Health Center

In addition to the bacteriological tests and rabies diagnosis procedures, the Campeche Animal Health Center is being equipped, with resources provided by a federal program,

*Alianza para el Campo* (Alliance for Agriculture), so that it will soon become a State Reference Laboratory. It will then be approved for Newcastle disease, avian influenza, avian salmonellosis, Aujeszky disease and hog cholera testing. Moreover, the Regional Central Laboratory in Mérida, Yucatan also provides assistance to carry out epidemiological surveillance of avian diseases in the states of Campeche and Quintana Roo.

## IV.- STATUS OF THE DISEASE

There is no history of **VND** in the state and the last diagnosed focus of **AS** took place on May 14, 1985.

In July 1996 the state entered the eradication phase of both avian diseases, and on December 19, 1997, it was officially declared to be free. Since 1997 active epidemiological surveillance of both commercial and back yard flocks is conducted on a permanent basis, by means of continuous statistical sampling.

## V.- STATUS OF VACCINATION IN THE REGION

**VND** vaccination is carried out according to the standard (Item 9, NOM-013-ZOO-1994, National Velogenic Newcastle Disease Campaign).

In the case of **AS**, since Campeche is a disease-free zone, the use of vaccines and bacterines against this kind of disease is forbidden for any kind of birds (Item 10.4, NOM-005-ZOO-1993, National Avian Salmonellosis Campaign).

## VI.- STATUS OF THE DISEASE IN ADJACENT REGIONS

In regard to **VND**, the use of emulsified and freeze-dried vaccines is generalized throughout the country, as indicated in Item 9 NOM-013-ZOO-1994, National Velogenic Newcastle Disease Campaign.

As to **AS**, since Yucatan and Quintana Roo are disease-free zones the application of vaccines and bacterines for this disease is forbidden for all kinds of birds (Item 10.4, NOM-005-ZOO-1993, National Avian Salmonellosis Campaign).

The state of Tabasco is currently in the control phase of these avian diseases, and therefore mobilization is restricted, as established by official Mexican standards NOM-013-ZOO-1994, National Velogenic Newcastle Disease Campaign, and NOM-005-ZOO-1993 National Avian Salmonellosis Campaign.

In addition to the restrictions on movements of birds and bird products, the restrictions called for by NOM-044-ZOO-1995, National Avian Influenza Campaign are also applied.

## VII.- PHYSICAL SEPARATION OR OTHER BARRIERS BETWEEN CAMPECHE AND OTHER REGIONS AT HIGHER RISK

Campeche is bounded on the north by Yucatan, on the east by Quintana Roo, on the southwest by Tabasco and on the south by Guatemala. Yucatan and Quintana Roo are free of these avian diseases.

Geographically, the state of Campeche is located in southeastern Mexico and belongs to the North Atlantic coastal plains. It is a part of the Yucatan Peninsula on the Gulf of Mexico coastal plain.

The most important natural physical barrier is the 523 kms of shoreline along the northwest part, from Point Nimu, in the Calkini municipality in the northern part of the state, to the outlet of the San Pedro y San Pablo river at the southern boundary of the Del Carmen municipality.

In the south, on the border with Guatemala, is the Calakmul Biosphere Reserve, which covers 600,000 hectares of rain forest. This is a protected zone in which agricultural production is restricted.

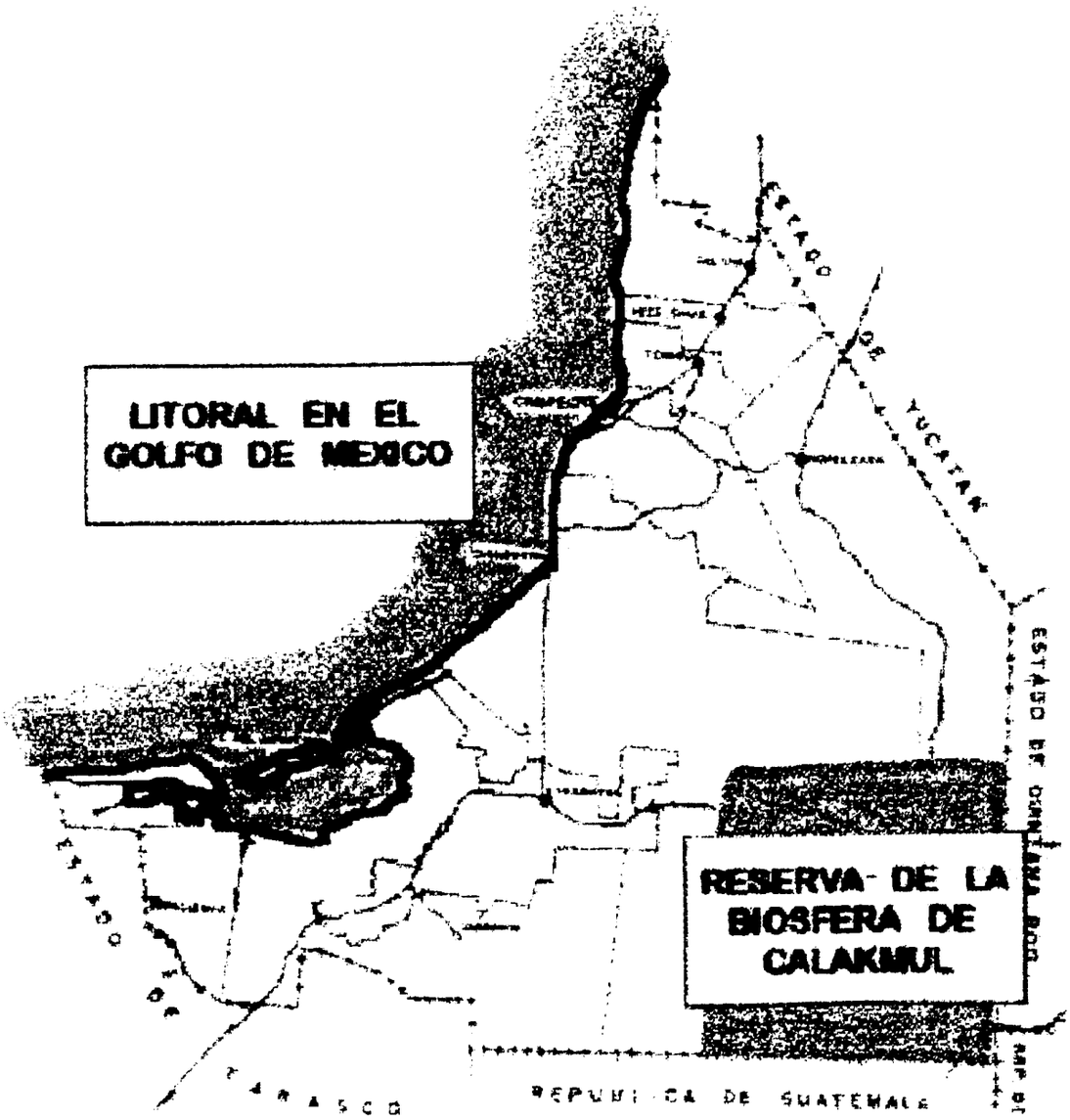
In terms of man-made physical barriers, Mexico has put in place the **National Agricultural Quarantine System** which is made up of a great many points where the movements of animals and animal products are controlled.

The National Agricultural Health Commission is made up of the General Animal Health Directorate, the General Plant Health Directorate and the General Directorate of Phytozoosanitary Inspection at Ports, Airports and Borders The first two are basically regulatory agencies while the third is operational. The National Agricultural Quarantine System combines the regulatory and operations functions of the three Directorates as a strategic basis for implementation of quarantine services, which are carried out to protect the country's farming , forestry and livestock resources. These services focus on preventing the entry of exotic pests and diseases and on contributing to prevention, and to control and eradication if the diseases should occur. They also support phytozoosanitary campaigns at the national level and the maintenance of zones that are free of animal and plant pests and diseases.

The National Agricultural Quarantine System is made up of the Foreign and the Domestic Quarantine services. The Foreign Quarantine Service includes all activities directed to preventing the entry of diseases into the country, while the Domestic Quarantine Service is in charge of the activities designed to prevent diseases that exist in the country from spreading to other areas, whether affected or disease-free.

**Domestic Quarantine.-** This service has check points within the country to inspect animals and agricultural products that are being mobilized, and to verify that official regulations are observed, in order to guarantee that such movements do not involve any zoosanitary risks.

# CALAKMUL BIOSPHERE RESERVE



The inspection posts that control inbound and outbound movements of animals and agricultural products and byproducts in **Campeche** are the following:

| CAMPECHE | | |
|---|---|---|
| **NAME** | **LOCATION** | **PERSONNEL** |
| Nuevo Campechito | km. 103.3, Villahermosa-Cd. Del Carmen Fed. Hwy. | 10 |
| Palizada | km. 19, Jonuta-Palizada Rd. | 4 |
| Pucte | km. 10, Villahermosa-Escarcega – Palizada Fed. Hwy. | 2 |
| Santa Adelaida | km. 175.2, Villahermosa-Escarcega Fed. Hwy. | 13 |
| San Elpidio | km. 183, Villahermosa-Escarcega Fed. Hwy. | 2 |
| El Naranjo | km. 7, Naranjo-Machetazo Rd. | 4 |
| El Encanto | 2.2 km on the Villahermosa-Escarcega Fed. Hwy. On the way to Candelaria | 2 |
| Xpujil-Caobas | km. 184, Escarcega-Chetumal Rd. | 4 |
| Becal- Halachó | km. 114.3, Campeche-Mérida Fed. Hwy. 180, short rte. | 8 |
| Yaxché-Sta. Elena | km. 105 Campeche-Mérida Fed. Hwy, by Chenes | 4 |

The persons who work at phytozoosanitary inspection posts are on the staff of SAGAR, the State Government and the State Livestock Sector Promotion and Protection Committee.

It should be mentioned that in March of this year the Tabasco state border organization was reinforced, with the cooperation of the states of Yucatan and Quintana Roo. This reinforcement included, in addition to strict control of animal and animal product movements, an increase in the number of inspectors assigned to inspection posts.

In addition to the external phytozoosanitary inspection posts described above, there are two internal inspection posts, one in the Campeche Municipal Slaughter Plant and the other in the Carmen Municipal Slaughter Plant. There are 4 inspectors from the State Producer Associations working in these posts.

The system provides even more protection for disease-free regions by means of regional quarantine cordons, made up of 46 facilities, including quarantine posts and stations, located around regions that comprise several states that share similar phytozoosanitary characteristics, and which because of their geographical location, means of communication and animal traffic, are implementing efficient control of movements of animals and agricultural products and byproducts.

The quarantine cordon that protects the states in the peninsula, including Campeche, is **the Peninsula – Tabasco Quarantine Cordon** and it is made up of the following inspection posts:

**PENINSULA – TABASCO REGION QUARANTINE CORDON**

| NAME | LOCATION |
|---|---|
| Tonalá | km. 132, VHSA-Coatzacoalcos Fed. Hwy. 180 |
| Francisco Rueda | km. 90, Huimanguillo- Chiapas St. Hwy. |
| San Manuel | Poblado San Manuel - Chimea, Chis. Rd. |
| Amacohite | km. 40, Huimanguillo - Malpaso, Chis. Fed. Hwy. 187 |
| Azufre | km. 80, VHSA-Pichucalco, Chis Hwy. 195 |
| Boca de Limón | km. 30 VHSA- Reforma St. Rd. |
| Tulija | km. 79 Mpio. Macuspana Fed. Hwy. 186 |
| Corralillo | km. 100 Mpio. Jonuta Fed. Hwy. 186 junction |
| Libertad | km. 4, Zapata-Tenosique Rd. |
| Gregorio Méndez | km. 43 E. Zapata- Tenosique |

**Foreign Quarantine.-** This type of quarantine is also considered the first line of sanitary defense and its purpose is to take preventive actions designed to prevent the entry of pests and diseases into the country. This is done by inspectors at sea ports, airports and borders.

The state of Campeche has the following inspection offices:

| Inspection Office | Border | Airport | Port |
|---|---|---|---|
| Ciudad del Carmen | | * | * |
| Campeche | | * | * |

## VIII.- CONTROL OF MOVEMENTS OF ANIMALS AND ANIMAL PRODUCTS FROM HIGHER RISK REGIONS

Movements of birds and bird products and byproducts are subject to the restrictions indicated in the regulations established by SAGAR.

### Movements

The table below shows the quantity of birds and bird products that entered the state of Campeche in the 1996 – 1997 period:

| Description | Unit | 1996 | 1997 |
|---|---|---|---|
| Finished hens | Heads | 9,660 | 48,325 |
| Culls (hens) | Heads | 16,027 | 73,727 |
| Geese | Heads | 0 | 3,844 |
| Ornamental birds | Heads | 140 | 0 |
| Turkey chicks | Heads | 1,246 | 49,805 |
| Finished turkeys | Heads | 2,598 | 423 |
| Layer chicks | Heads | 394,943 | 230,692 |
| Finished broilers | Heads | 1'347,977 | 1,004,024 |
| Other birds | Heads | 26,028 | 7,381 |
| Processed hens | Tons | 34.26 | 38.64 |
| Chicken manure | Tons | 228.01 | 87.02 |
| Eggs | Boxes | 324,546 | 346,788 |
| Fertile eggs | Units | 16,680 | 37,400 |
| Processed turkeys | Tons | 505.05 | 723.86 |
| Chick manure | Tons | 157.08 | 493.51 |
| Processed broilers | Tons | 5,108.16 | 7,301.89 |
| Viscerae | Tons | 40 | 0 |
| Poultry sausages | Tons | 1,324.07 | 912.57 |
| Other products | Tons | 65.81 | 67.40 |

The number of vehicles disinfected at the Peninsular Federal Cordon during the 1996 – 1997 period is shown below:

| Type of vehicle (carriers) | Number of vehicles 1996 | 1997 |
|---|---|---|
| Poultry | 2,731 | 4,010 |
| Swine | 1,205 | 2,080 |
| Cattle | 572 | 594 |
| **Total** | **4,508** | **6,684** |

The number of seizures at the Federal Cordon during the same period is shown below:

| Type of seizure | Number of seizures 1996 | 1997 |
|---|---|---|
| Poultry | 6,711 | 5,841 |
| Swine | 3,423 | 3,385 |
| Cattle | 192 | 270 |
| **Total** | **10,326** | **9,496** |

The materials seized and held at the check points are small quantities of bird products or byproducts that do not meet movement requirements according to Official Mexican Standards NOM-013-ZOO-1994, National Velogenic Newcastle Disease Campaign;

NOM-005-ZOO-1993, National Avian Salmonellosis Campaign; and NOM-044-ZOO-1995, National Avian Influenza Campaign, which can represent a zoosanitary risk for the state.

## IX.- ANIMAL DEMOGRAPHICS AND MARKETING PRACTICES IN THE REGION

At present there are 30 technified poultry farms in the state of Campeche, with a population of 1,185,181 birds, in addition to 180,202 birds in back yard flocks throughout the 4 DDRs in the state. The tables below show the breakdown of these farms and birds:

**Technified Farms in 1998**

| Production Type | Number of Farms | Number of Birds |
|---|---|---|
| Broilers | 13 | 783,500 |
| Commercial Layers | 16 | 391,681 |
| Broiler Breeders | 1 | 10,000 |
| **Total** | **30** | **1,185,181** |

**Back Yard Bird Inventory, 1998**

| Municipality | Number of properties | Total No. of Birds |
|---|---|---|
| Calkini | 1,751 | 18,798 |
| Hecelchakan | 3,882 | 37,542 |
| Tenabo | 346 | 3,804 |
| Campeche | 962 | 10,158 |
| Hopelchen | 1,025 | 13,500 |
| Champotón | 3,766 | 47,500 |
| Carmen | 2,000 | 23,840 |
| Escárcega | 1,672 | 16,240 |
| Palizada | 897 | 8,820 |
| **Total** | **16,301** | **180,202** |

Because of the similar animal health conditions, and because integrated poultry companies have production units in Yucatan, Campeche and Quintana Roo, the three states are considered a single region, called the Yucatan Peninsula Region.

The biggest supplier of birds and bird products and byproducts in the state of Campeche is Yucatan, which basically supplies eggs, meat and processed chicken (part of which are produced in Campeche and later processed in Yucatan slaughter and packing plants.)

The state's demand for table eggs is filled by eggs brought in from Yucatan, and in a smaller proportion, from states farther north.

10% of the birds and poultry products in the region are sold in the states of Tabasco and Veracruz.

## X.- EMERGENCY RESPONSE CAPACITY

**GEESA.-** The regional GEESA was established in June, 1995, and is made up of 36 veterinarians from the states of Yucatan, Campeche and Quintana Roo.

**Training.-** In June, 1997, epidemiological surveillance training was given to 42 technicians in Yucatan, Campeche and Quintana Roo from state SAGAR delegations, state governments, Cattle, Swine and Poultry Producer Associations, directors of zoos and animal health diagnosis laboratories, GEESA groups, State Livestock Protection and Promotion Committees, Coordinators of the National Bovine Tuberculosis and Brucellosis Eradication Campaign, approved veterinarians and veterinarians in private practice.

## ANNEXES

**1.- SAGAR Federal Structure in the State of Campeche.**

**2.- Rural Development Secretariat in the State of Campeche.**

**3.- Livestock Protection and Promotion Committee Organization Chart**

**4.- Geographical Location of the State.**

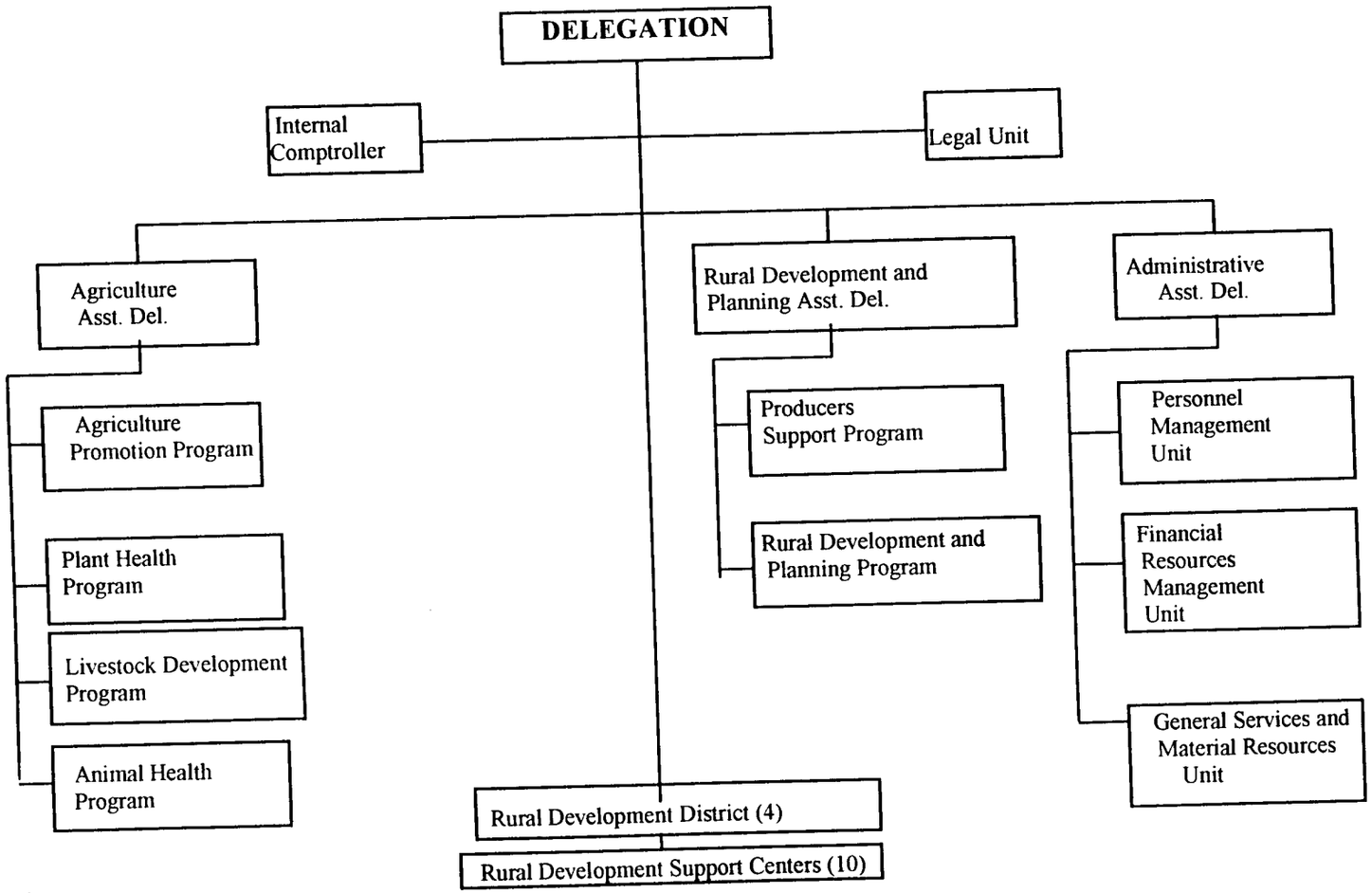
**5.- DDR Map.**

**6.- Regional Quarantine Cordons.**

**7.- Zoosanitary Check Points.**

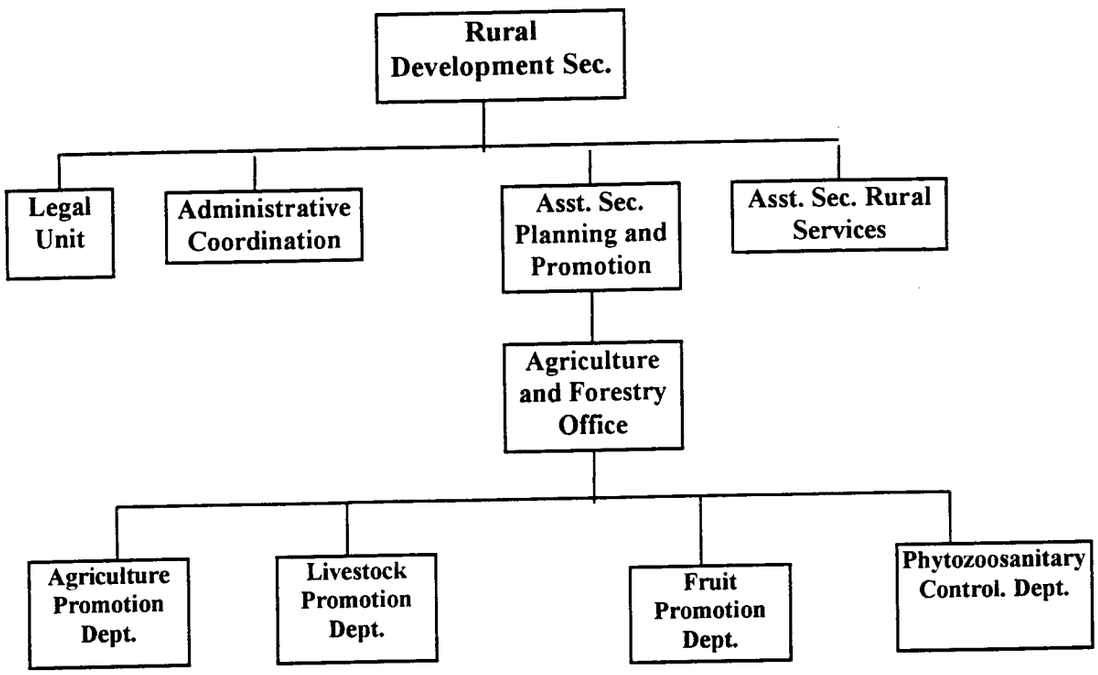
**Annex 1**

## SAGAR Federal Structure in the State of Campeche

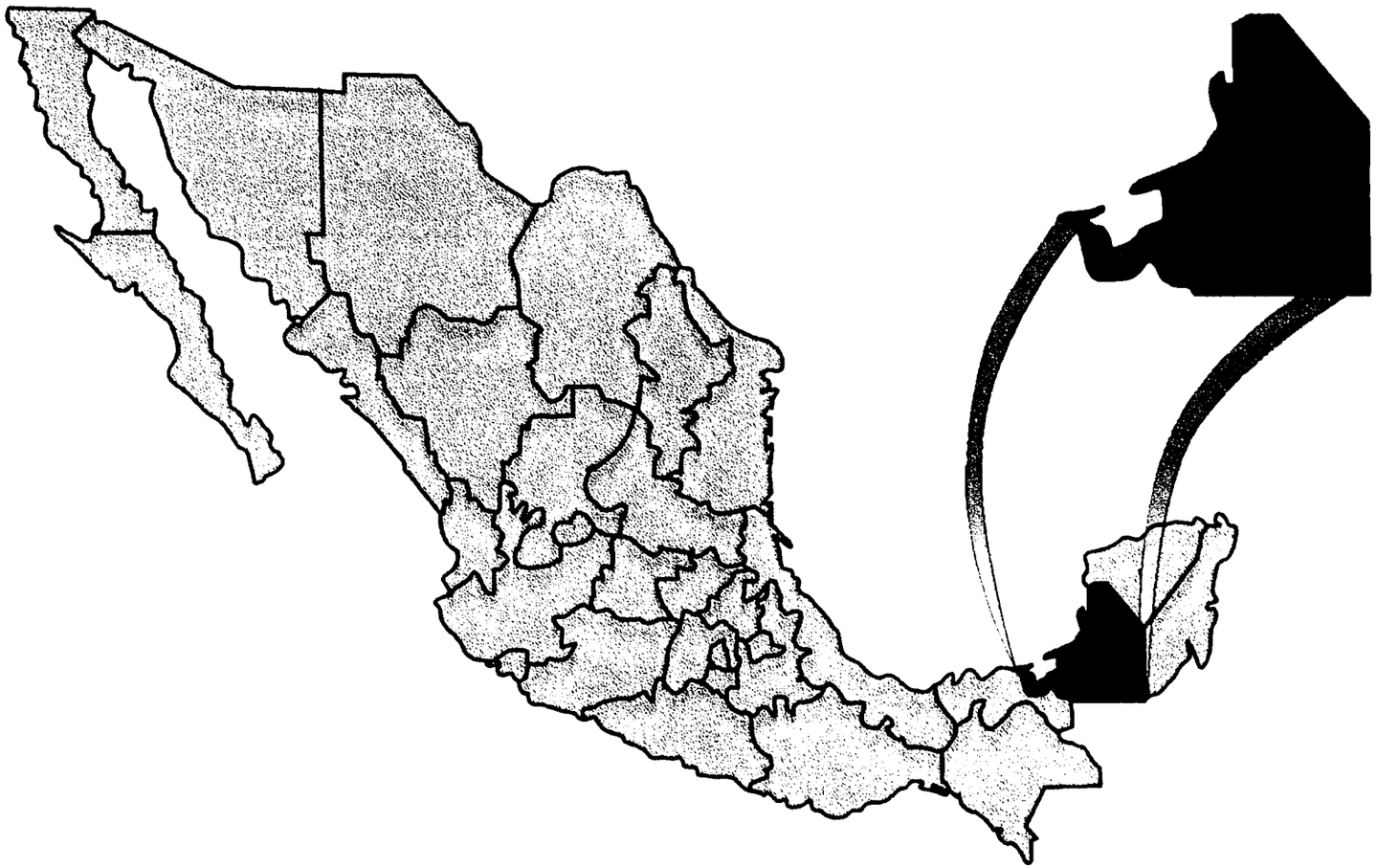


## Annex 2

### Rural Development Secretariat

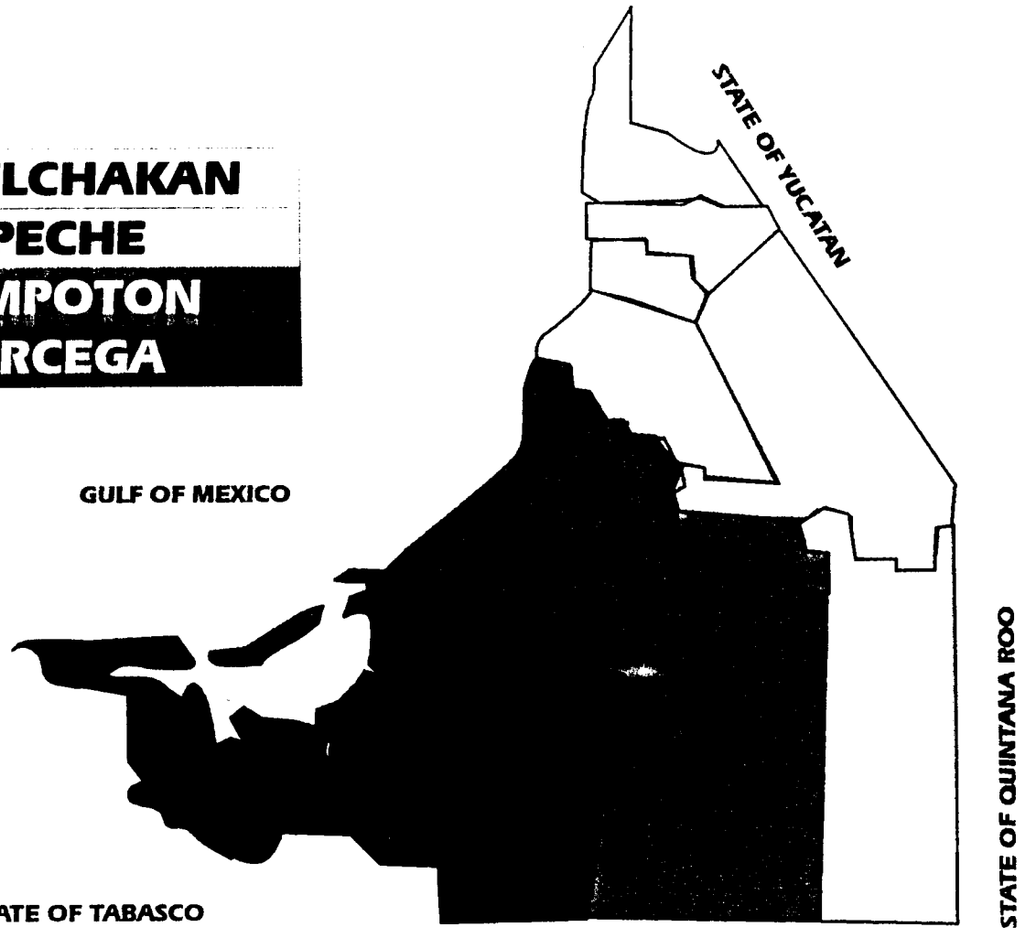


# GEOGRAPHIC LOCATION
# STATE OF CAMPECHE

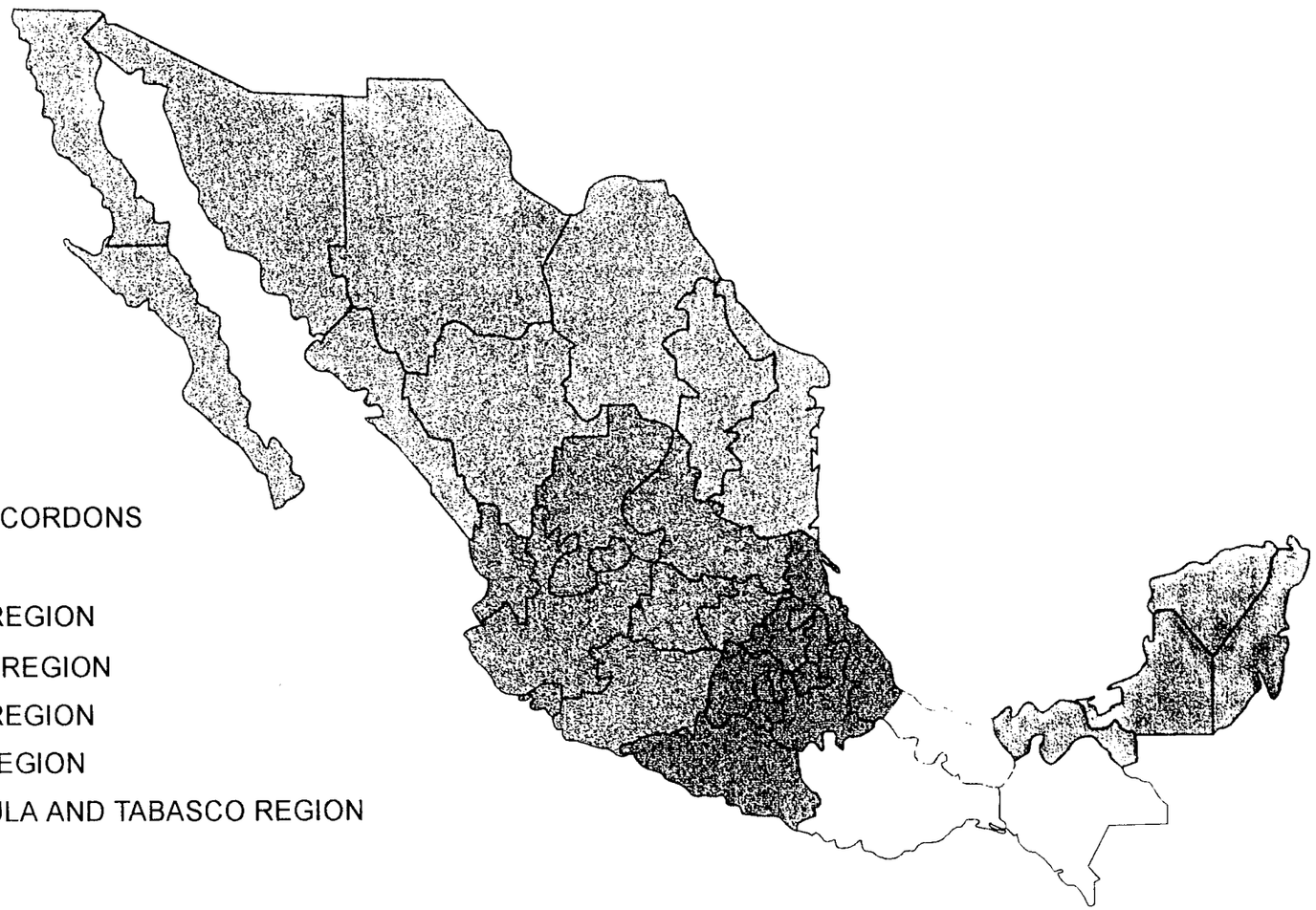


# RURAL DEVELOPMENT DISTRICTS
# STATE OF CAMPECHE

**001 - HECELCHAKAN**
**002 - CAMPECHE**
**003 - CHAMPOTON**
**004 - ESCARCEGA**



# REGIONAL QUARANTINE CORDONS



QUARANTINE CORDONS

- NORTH REGION
- CENTER REGION
- SOUTH REGION
- ITSMO REGION
- PENINSULA AND TABASCO REGION

# ZOOSANITARY CHECK POINTS

**INFRASTRUCTURE OF QUARANTINE CONTROL**

1.- NUEVO CAMPECHITO
2.- PALIZADA
3.- PUCTE
4.- SANTA ADELAIDA (TIPO ARCO)
5.- SAN ELPIDIO
6.- EL NARANJO
7.- EL ENCANTO
8.- CAOBAS
9.- SANTA ELENA
10.- HALACHO
11.- RASTRO CAMPECHE
12.- RASTRO CARMEN